

REMARKS

Claims 12-18, 23, 25-32, 37, and 39-40 remain pending in the present application. Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the office action of November 22, 2006, the following actions were taken:

- (1) Claims 12-16, 23, 25-30, 37, and 39-40 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,750,592 to Shinozuka et al. (hereinafter "Shinozuka");
- (2) Claims 12-15, 17-18, 23, 25-29, 31-32, 37, and 39-40 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2004/0229974 of Miyabayashi (hereinafter "Miyabayashi '974");
- (3) Claims 12-15, 17-18, 23, 25-29, 31-32, 37, and 39-40 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2003/0069329 of Kubota et al. (hereinafter "Kubota");
- (4) Claims 16, and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyabayashi '974, or Kubota either of which in view of either U.S. Patent Publication No. 2004/0055508 of Miyamoto et al. (hereinafter "Miyamoto") or U.S. Patent No. 6,451,103 to Uemura et al. (hereinafter "Uemura"); and
- (5) Claims 22 and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyabayashi '974 or Kubota either of which in view of U.S. Patent No. 6,536,890 to Kato et al. (hereinafter "Kato").

It is respectfully submitted that the presently pending claims be examined and allowed. Applicants submit that each and every amendment herein, and throughout the prosecution of the present application is fully supported by the specification as originally filed, and that no new matter has been added.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 12-18, 23, 25-32, 37, and 39-40 under 35 U.S.C. 102 over several references. By the present amendment, the subject matter of claims 22 and 36 has been incorporated into independent claims 12 and 26,

respectively. None of the rejections based on 35 U.S.C. § 102 are directed towards claims 22 or 36. As none of the cited § 102 references teach thermal ink-jet architecture, the Applicant believes the rejections based on Shinozuka, Miyabayashi '974, and Kubota to be moot. Therefore, removal of these rejections is respectfully requested.

Rejections Under 35 U.S.C. § 103

The Examiner has rejected claims 16, 22, 30, and 36 as being obvious in view of several references. Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to the MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing the prior art reference, or references combined, teach or suggest all the claim limitations in the instant application. Further, the Examiner has to establish some motivation or suggestion to combine and/or modify the references, where the motivation must arise from the references themselves, or the knowledge generally available to one of ordinary skill in the art. The Applicant respectfully asserts the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in any of the rejections.

The Miyabayashi '947 and Kubota references in view of Miyamoto or Uemura

The Examiner has rejected claims 16 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Miyabayashi '974, or Kubota either of which in view Miyamoto or Uemura. However, Applicant submits that the presently pending claims are patentable. As discussed above, independent claims 12 and 26 have been amended to include a requirement directed to thermal ink-jet architecture. None of the references teach this requirement. Therefore, and in light of the presently amended claims, Applicant submits that the rejection based on the combination of Miyabayashi '974, or Kubota either of which in view Miyamoto or Uemura is moot, and requests that these rejections be withdrawn.

The Miyabayashi '947 and Kubota references in view of Kato

The Examiner has rejected claims 22 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Miyabayashi '974 or Kubota either of which in view of Kato. By the present amendment, the subject matter of claims 22 and 36 has been incorporated into independent claims 12 and 26, respectively, and the former claims canceled.

The Miyabayashi '974 reference

Miyabayashi '974 teaches a microencapsulated pigment where pigment particles with an anionic group on the surface are coated with a polymer. Ink-jet inks including the microencapsulated pigment and water, and methods of printing with the ink-jet inks are taught. Miyabayashi '974 also teaches that heating of printed matter may be necessary to accommodate polymers with high transition temperatures. Miyabayashi does not disclose the use of a thermal ink-jet printer.

The Kubota reference

Kubota teaches an ink composition with colorant, resin emulsion particles, water-soluble organic solvent, water and a reaction solution. The reference further discusses a recording method using the ink composition. As with Miyabayashi, Kubota does not teach the use of thermal ink-jet architecture.

The Kato reference

Kato teaches compositions and methods for improving optical density and saturation by ink-jet recording. Kato teaches using a liquid composition with cationic micro-particles in combination with a separate anionic ink composition. An image can be formed by applying both the liquid composition and the anionic ink to a recording medium such that the two liquid compositions contact one another on the recording medium. The Examiner cites to a brief section of the disclosure noting that ink according to the invention can be used with thermal ink-jet architecture. Immediately thereafter, the disclosure notes that when used with an ink-jet recording method, the thermal properties (e.g. specific heat, thermal expansion coefficient, thermal conductivity) may have to be regulated.

The Examiner has focused on the motivation of Kato to ink ejected on stable basis with no satellite dots produced as motivation for the combination. However, as noted in the present Application, configuring a system including thermal ink-jet architecture often requires additional consideration and experimentation of at least selection of ink components. To quote the disclosure,

"As a further note, thermal ink-jet systems are quite different in their jetting properties than piezo ink-jet systems. As such, polymer colloid particulates that are effective for use in piezo ink-jet systems are not necessarily effective for use with thermal ink-jet ink systems. However, the converse is not necessarily true. In other words, polymer colloid particulates that work well with thermal ink-jet systems are more likely to work with piezo systems than *vice versa*. Therefore, the selection or manufacture of polymer colloid particulates for use with thermal ink-jet systems often requires more care, as thermal ink-jet systems are less forgiving than piezo ink-jet systems." p. 14, ln. 30 – p. 15 ln. 6.

Such warning regarding the difficulty in working with thermal ink-jet architecture is echoed by Kato's brief statement above. Kato, however, does not deal with the combination of the ink components in a single fluid as does the present invention, Miyabayashi '974, or Kubota. One of ordinary skill in the art would not be motivated to combine the inks of Miyabayashi '974 or Kubota with the thermal ink-jet architecture briefly noted in Kato. Further, such combination would not provide a reasonable expectation of success to skilled in the art, as the selection or manufacture of components for use with thermal ink-jet systems often requires a much greater level of care than with other ink-jet systems.

Furthermore, the combination does not teach each and every element. Specifically, Miyabayashi '974 fails to teach that heating of printed matter may be necessary to accommodate polymers with high transition temperatures, it does not teach that this method as connected with printing on non-porous substrates as they are defined in the Applicant's disclosure. In fact, the reference only refers to plain papers and media specifically for ink-jet recording, rather than the non-porous substrates such as vinyl, plastic, and offset media to which the present invention is directed. See paragraphs 0340-41. The coated paper referenced by the Examiner is not necessarily non-porous. Kato discusses at great lengths in the summary the use of porous coated media, and therefore does not remedy this deficiency.

Kubota fails to disclose printing of an ink-jet ink including polymer-encapsulated pigment colorant and acid-functionalized polymer colloid particulates

dispersed in a liquid vehicle having a volatile co-solvent, where the image is heated after printing. For example, the ink composition referred to by the Examiner (Ink 4, Table F2) was not subjected to heating. Conversely, the only compositions where heating was utilized (Ink composition A, Color Ink Set A) did not comprise polymer-encapsulated pigments—rather, the pigments and dispersants were combined by mere mixing. See paragraph 0241. These examples in Kubota provide no teaching, therefore, of the combination of elements claimed in the present independent claims 12 and 26. Kato does not remedy this deficiency and therefore the combination does not teach each and every element.

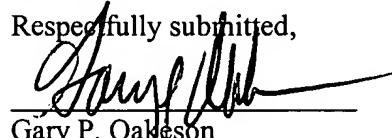
Therefore, the cited combination of references fails to provide proper motivation to combine, fails to provide reasonable expectation of successfully combining the references, and further fails to teach each and every element of the present invention. As such, Applicant respectfully requests that these rejections be withdrawn.

In view of the foregoing, Applicants believe that all the presently pending claims present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone W. Bradley Haymond (Registration No. 35,186) at (541) 715-0159 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 22nd day of February, 2007.

Respectfully submitted,



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